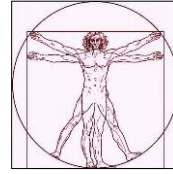


Neoplasms of the Colon and of the Rectum

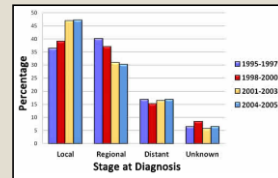


2015-2016 FCDS EDUCATIONAL WEBCAST SERIES
STEVEN PEACE, BS, CTR
FEBRUARY 18, 2016



2016 Focus

- Anatomy
- SS 2000
- AJCC TNM
- MPH Rules



CDC & Florida DOH Attribution

2

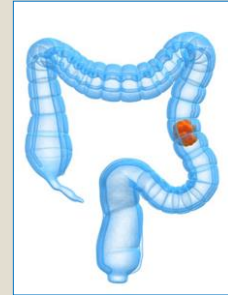
“We acknowledge the Centers for Disease Control and Prevention, for its support of the Florida Cancer Data System, and the printing and distribution of the materials for the 2015-2016 FCDS Webcast Series under cooperative agreement DPO03872-03 awarded to the Florida Department of Health. The findings and conclusions in this series are those of the author(s) and do not necessarily represent the official position of the Centers for Disease Control and Prevention”.

FCDS would also like to acknowledge the Florida Department of Health for its support of the Florida Cancer Data System, including the development, printing and distribution of materials for the 2015-2016 FCDS Webcast Series under state contract CODJU. The findings and conclusions in this series are those of the author(s) and do not necessarily represent the official position of the Florida Department of Health.

Presentation Outline

3

- Introduction to Neoplasms of the Colon & Rectum
- Anatomy of the Colon and the Rectum
- Diagnostic Workup and Tests
- Critical Colo/Rectal MPH Rules
- 2016 - New Use of “c” and “p” Prefix
- 2016 - New T, N, M Category Codes
- Anatomic Staging (AJCC TNM / SS2000)
- Text Documentation
- Staging Practice
- Questions



<http://safetyca.info>

Presentation Outline

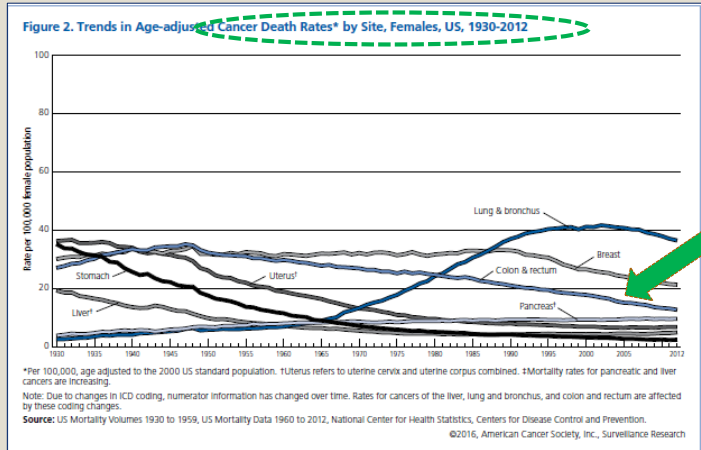
4

- What we will not be discussing today – not enuf time.
 - Risk Factors
 - Signs & Symptoms
 - Screening Guidelines
 - Details of Colo/Rectal MPH Rules
 - Every Histologic Type of Colo/Rectal Cancer
 - AJCC TNM General Instructions and Rules
 - Conflicts between MPH Rules and TNM Chapters
 - Site Specific Factors Not Required for Staging
 - Biologic, Molecular, Single or Multi-Gene Testing
 - NCCN or Other Treatment Guidelines



Introduction

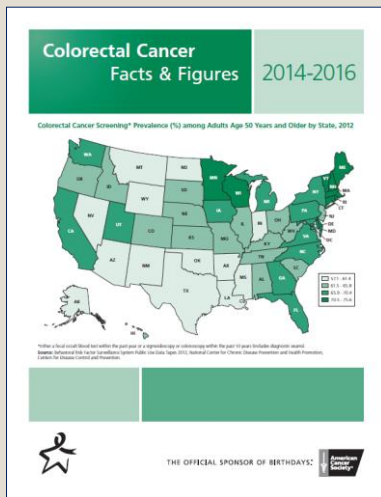
5



American Cancer Society – 2016 Cancer Facts & Figures

Introduction

6



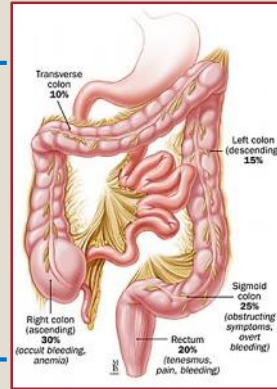
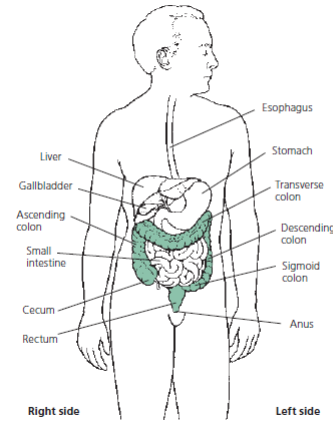
- **1 in every 20 persons will develop colon or rectal cancer in their lifetime.**
- **Colorectal cancer is the #3 cause of cancer deaths in the U.S.**
- **Colorectal cancer often begins as a benign growth; a polyp.**
- **Adenomas are a type of polyp and are benign tumors of the tissue lining the colon or rectum.**
- **Most adenomas are benign.**
- **However, some adenomas have the potential to develop into cancer over the long term.**
- **When removed early, polyps are prevented from developing into malignant cancer.**

American Cancer Society – Colorectal Cancer Facts & Figures 2014-2016

Anatomy

7

Figure 1. Anatomy of the Colon and Rectum



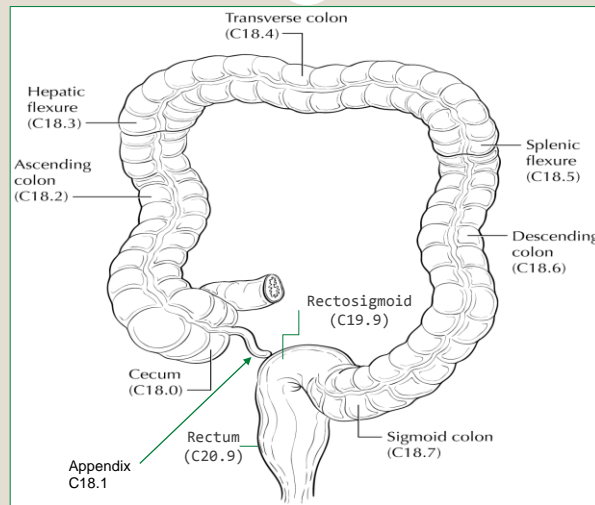
ACS Colorectal Cancer Facts & Figures 2014-2016 and <http://fcr-archives.org>

Colon and Rectum

8

R
I
G
H
T

C
O
L
O
N

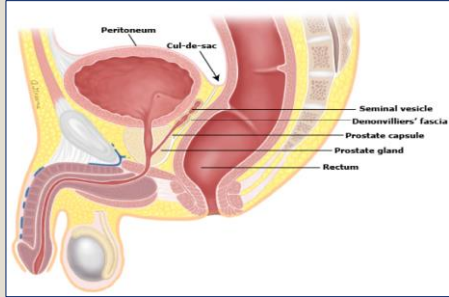


L
E
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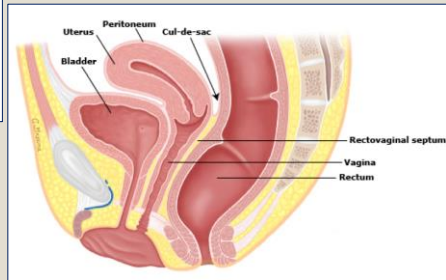
Rectosigmoid and Rectum

9



Male Anatomy

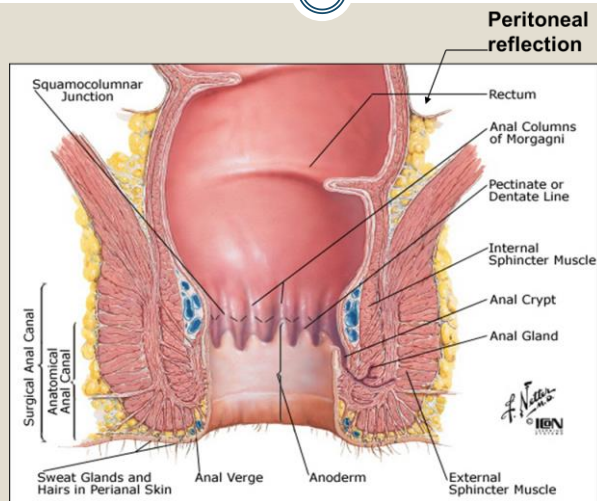
Female Anatomy



<http://www.uptodate.com>

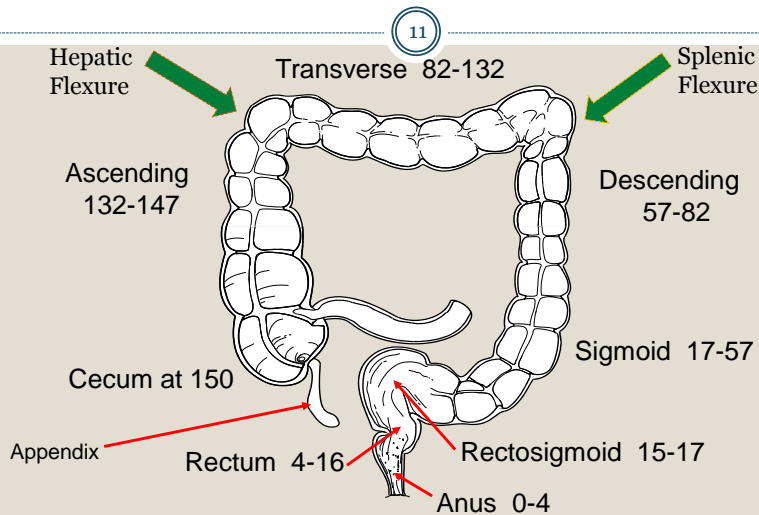
Rectum – Anorectum – Anus

10



<http://www.analcancerinfo.ucsf.edu>

Colonoscopy Measurements

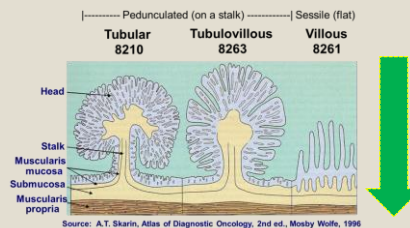


Distance from Anal Verge (approximations only)
Adapted from AJCC Cancer Staging Manual

Polyps and Colon Cancer

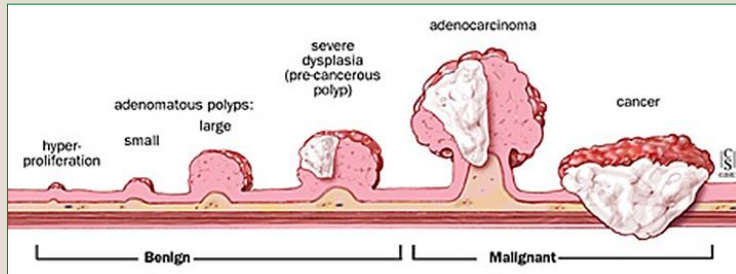
12

- 95-98% of colon cancers - adenocarcinoma
 - Most originate in polyps or adenomas
 - But, only 10% of adenomas develop into cancers
- Types of adenoma
 - Tubular
 - Villous
 - Tubulo-villous
- Process takes up to 10 years
- De Novo Cancers – mucinous, signet ring
 - >10% of all colon ca are mucinous (>50% mucin production)
 - <1% of all colon ca are signet ring cell (>50% signet rings)



Polyps and Colon Cancer

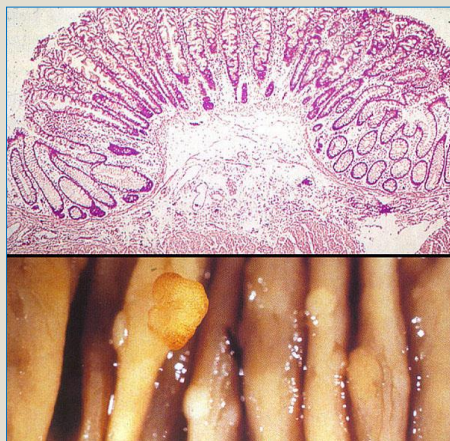
13



<http://hopkinscoloncancercenter.org>

Polyps and Colon Cancer

14



**HYPERPLASTIC
POLYP – NO CA**

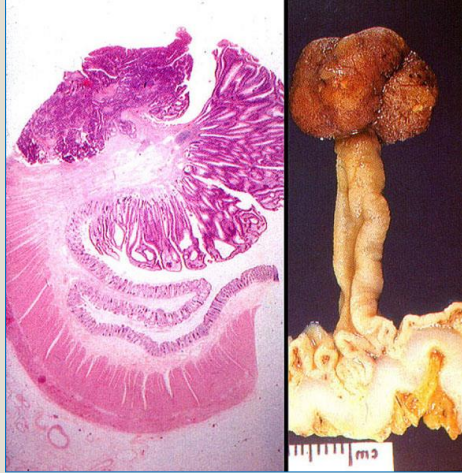
**SMALL
REACTIVE
POLYP**

**NOT PRE-
CANCEROUS**

<http://www.pathology.pitt.edu/lectures/gi/colon-a/14.htm>

Polyps and Colon Cancer

15



**TUBULAR
ADENOMA**

OFTEN BENIGN

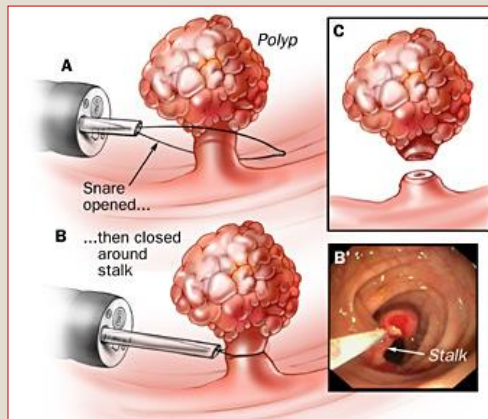
**>10% MAY
CONTAIN a
NON-INVASIVE
or INVASIVE
CANCER**

**POLYP
REMOVAL WILL
PREVENT
COLON CANCER**

<http://www.pathology.pitt.edu/lectures/gi/colon-a/16.htm>

Polyps and Colon Cancer

16



<http://hopkinscoloncancercenter.org>

Polyps and Colon Cancer

17



**SESSILE
VILLOUS and
TUBULO-
VILLOUS
ADENOMA**

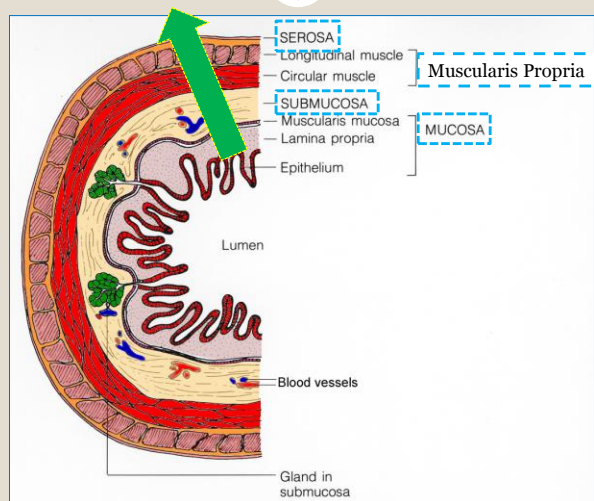
**MORE OFTEN
CONTAIN
INVASIVE
CANCER**

**POLYP
REMOVAL MAY
NOT REMOVE
ALL CANCER**

<http://www.pathology.pitt.edu/lectures/gi/colon-a/17.htm>

Layers of Colon Wall

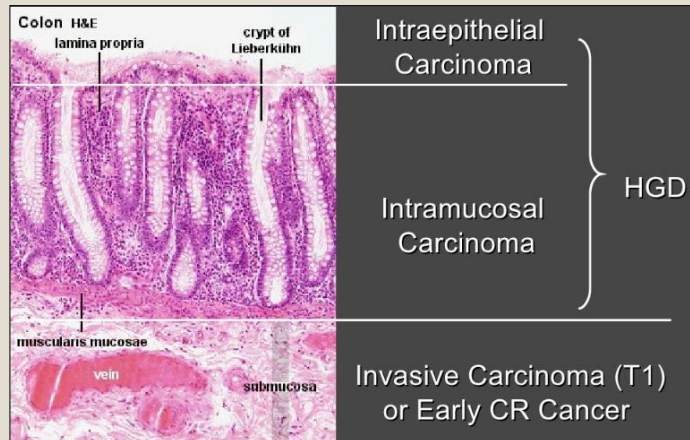
18



<http://www.mannisjournals.com.au/images>

Intramucosal Colon Cancer

19



Source: <http://www.slideshare.net/giaffa/petruzzello>

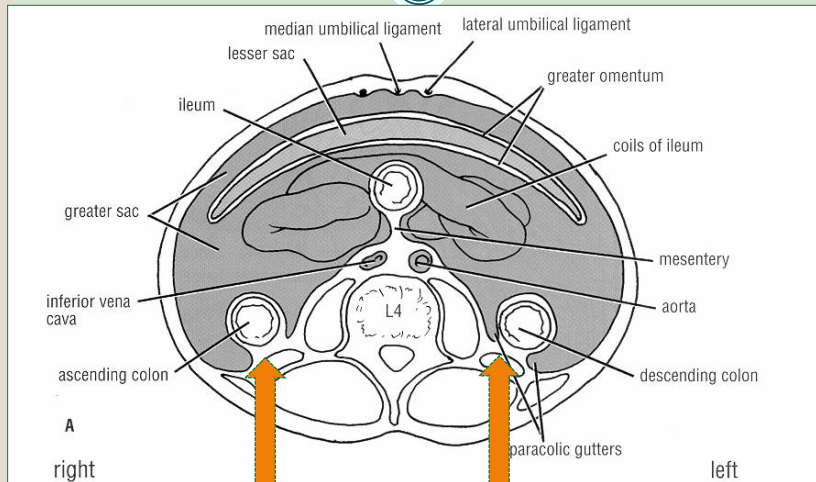
“Non-Peritonealized” Surface

20

- ❑ The serosa acts as barrier for tumors that begin on inside surface of the colon and invade down into the mucosa and through the wall of the colon (the serosa).
- ❑ Some colon surfaces have no serosa at the exterior surface (around the hollow organ)
- ❑ When there is no serosa – you lose a natural barrier that helps contain the colon cancer
- ❑ Non-Peritonealized Surfaces in Colon-Rectum:
 - Rectum – no serosa in rectum below peritoneal reflection
 - Descending Colon – no serosa covering posterior surfaces
 - Ascending Colon – no serosa covering posterior surfaces

“Non-Peritonealized” Surface

21



No Serosa Here

Clinical Anatomy for Medical Students, 5th Edition, Richard S. Snell. Little, Brown and Company, 1995.

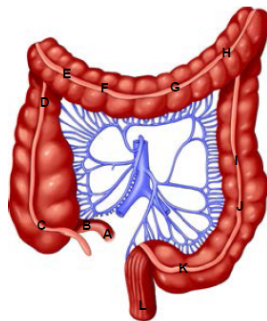
Surgical Resection

22

DEFINITIONS OF COMMON COLORECTAL RESECTIONS

The extent of colorectal resection depends on the location of the tumor, any underlying condition (eg, inflammatory bowel disease, hereditary syndrome), and the vascular supply to the colorectum.

Definitions of common colorectal resections are as follows:¹



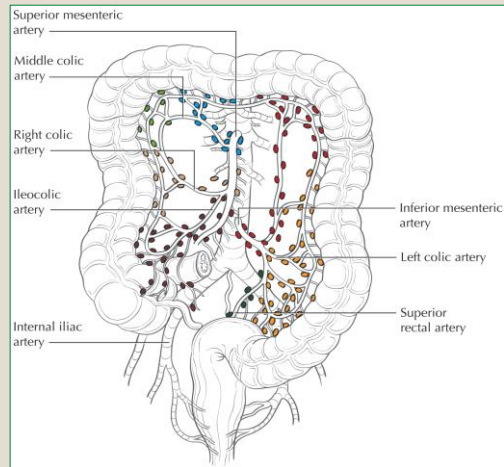
- A through C Ileocectomy
- A through D Ascending colectomy
- A through F Right hemicolectomy
- A through G Extended right hemicolectomy
- E through H Transverse colectomy
- G through I Left hemicolectomy
- F through I Extended left hemicolectomy
- J through K Sigmoid colectomy
- A through J Subtotal colectomy
- A through K Total colectomy
- K through L Low anterior resection with sphincter preservation
- K through L Abdominoperineal resection without sphincter preservation

Adapted and reprinted with permission from Bullard KM and Rothenberger DA. (2005). Colon, Rectum, and Anus. In Brunnicardi C (Ed.) Schwartz's Principles of Surgery, 8th Edition, page 1069. McGraw Hill: New York, NY.

NCCN Guidelines – Colorectal Cancer Screening

Lymphatics of Colon / Rectum

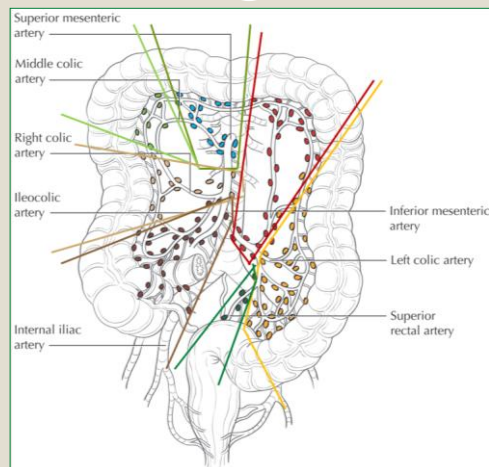
23



AJCC Image - The regional lymph nodes of the colon and rectum are colored by anatomic location.

Lymphatics of Colon / Rectum

24



Modified AJCC Image - The regional lymph nodes of the colon and rectum are colored by anatomic location.

“Tumor Deposits”

25

- Definition
 - Separate tumor nodules or tumor deposits of malignant cells in perirectal or pericolic fat with no evidence of lymph node tissue
- Found in primary lymphatic drainage area
- Other names
 - Peri-tumoral deposits, satellite nodules, discontinuous extramural extension, or malignant tumor foci
- N1c = Specific TNM “N” Code for tumor nodule or deposit(s) in the subserosa, mesentery, or non-peritonealized pericolic or perirectal tissues without regional nodal metastasis.

“Tumor Deposits”

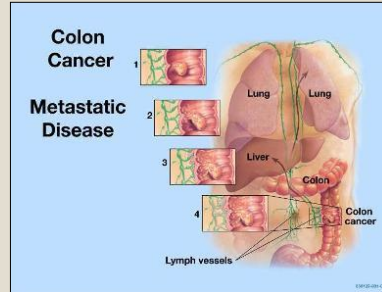
26

- Mesenteric
 - Pericolonic
 - Perirectal
 - Subserosa
 - All Regional Lymph Nodes Negative
 - Deposits + LNs
-
- N1c = Tumor deposit(s) in the subserosa, mesentery, or nonperitonealized pericolic or perirectal tissues without regional nodal metastasis.

Metastatic Sites

27

- Lung
- Liver
- Lymph Nodes
- Seeding in peritoneum
- Seeding of small intestine
- Seeding of other segments of colon



www.colorectal-surgeon.com

Critical MPH Rules



- 2017 MPH Rules Update
- New MPH Database
- Text Only Rules
- Stay Tuned

Multiple Primary Rules

29

Unknown Number

- M1. Unknown whether single or multiple tumors = single

One Tumor

- M2. Single tumor = single

Multiple Tumors

- M3. Adenoca in adenomatous polyposis coli in one or multiple segments = single

Source: AFritz and Associates, LLC

Multiple Primary Rules

30

Multiple Tumors, continued

- M4. Different topography = **multiple**
- M5. Diagnosis dates > 1 year apart = **multiple**
- M6. Invasive after in situ > 60 days = **multiple**
- M7. Frank adenocarcinoma and malignant tumor in a polyp = single
- M8. Non-specific and specific histology = single
- M9. Multiple polyps (all malignant) = single
- M10. Histology different = **multiple**
- M11. All other scenarios = single

Source: AFritz and Associates, LLC

New Histologic Terms and Code

31

- Glandular **intraepithelial** neoplasia, **high grade**
- Glandular **intraepithelial** neoplasia, **grade III**
- Flat **intraepithelial** neoplasia, **high grade**

- **8148/2** – Use Code for GI Tract in 2017

- All **low grade intraepithelial** neoplasia = /o
- All **grade I or grade II intraepithelial** neoplasia = /o

Mucinous and Signet Ring Cell

32

- Mucinous adenocarcinoma (8480)
Code when
 - **Final diagnosis is mucinous** OR
 - Documentation says > **50% mucinous**
 - ✦ **May use microscopic section of path report**

- Signet ring cell carcinoma (8490)
Code when
 - **Final diagnosis is signet ring cell** OR
 - Documentation says > **50% signet ring cell**
 - ✦ **May use microscopic section of path report**

 - “...with signet ring cells” **≠** signet ring cell CA

Colorectal NETs and GISTs

33

- NETs and GISTs are specific types of stroma/connective tissue tumors that effect the endocrine and neuroendocrine system.
- The endocrine system works alongside of the nervous system to form the control systems of the body. The nervous system provides a very fast and narrowly targeted system to turn on specific glands and muscles throughout the body. The endocrine system, on the other hand, is much slower acting, but has very widespread, long lasting, and powerful effects. Hormones are distributed by glands through the bloodstream to the entire body, affecting any cell with a receptor for a particular hormone. Most hormones affect cells in several organs or throughout the entire body, leading to many diverse and powerful responses.
- Because they effect the endocrine/neuroendocrine system – both NETs and GISTs impact or disrupt the body's hormone functions

Colorectal NETs and GISTs

34

- NETs in the GI Tract develop in neuroendocrine cells of the connective tissues in and around the GI Tract and may grow inward or outward.
 - Neuroendocrine Carcinoma Low Grade/High Grade
 - Carcinoid Tumor – 2015 ALL are reportable/malignant
- NETs in the GI Tract stimulate hormone-producing endocrine cells resulting in the overproduction of vasoactive peptide hormones and causing symptoms of - “carcinoid syndrome” – skin flushing, fatty diarrhea, bronchospasms, and “dumping” syndrome.

Colorectal NETs and GISTs

35

- GISTs make up only about 1% of all GI Tract neoplasms
- GISTs in the GI Tract develop in the stroma or muscle layer of the walls of the GI Tract from the esophagus down to the rectum and grow outward.
- Location, Size, and Mitotic Index are Key Indicators
- GIST do not cause symptoms in early stages. Symptoms can include nausea, vomiting, weight loss, pain, and bleeding. Early tumors are usually incidental findings.
- GIST do not effect hormone function, production or release.
- GIST do effect regulation of peristalsis – pushing materials down the digestive tract.
- When no primary is stated, the site is GI Tract, NOS.

Colon and Rectal Cancer Staging

American Joint Committee on Cancer
Colon and Rectum Cancer Staging 7th EDITION

Definitions

Primary Tumor (T)

1. T1: Tumor invades submucosa
2. T2: Tumor invades muscularis propria
3. T3: Tumor invades through the muscularis propria into subserosa or into the mesentery/omentum
4. T4: Tumor invades serosa or adjacent structures

Regional Lymph Nodes (N)

1. N0: No regional lymph node metastasis
2. N1: Metastasis in 1-3 regional lymph nodes
3. N2: Metastasis in 4-16 regional lymph nodes

Distant Metastasis (M)

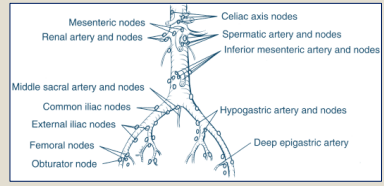
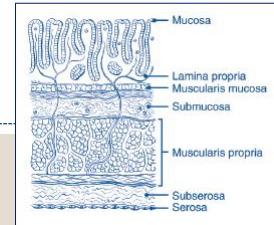
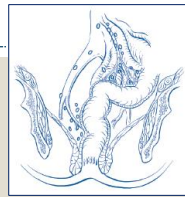
1. M0: No distant metastasis
2. M1: Metastasis in distant site (e.g., lung, liver, distant lymph nodes)

Notes:

1. The TNM staging system is based on the extent of the primary tumor, the extent of regional lymph node metastasis, and the extent of distant metastasis.

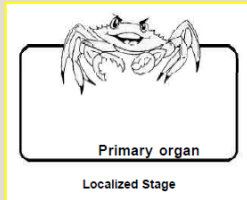
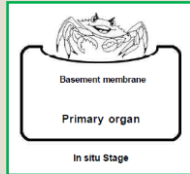
2. The TNM staging system is based on the extent of the primary tumor, the extent of regional lymph node metastasis, and the extent of distant metastasis.

3. The TNM staging system is based on the extent of the primary tumor, the extent of regional lymph node metastasis, and the extent of distant metastasis.

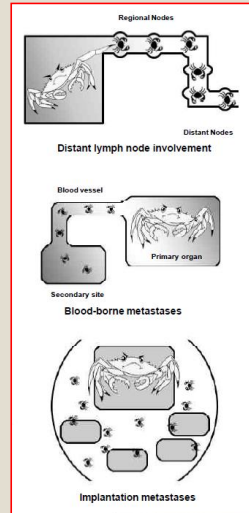
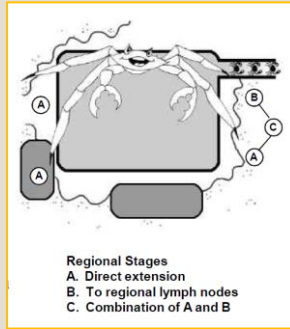


SEER Summary Stage

37



Purpose of Staging
Biochemical Tumor Markers
Molecular Tumor Markers
Genetic Mutations/Variations
Risk Stratification



Source: SEER Summary Staging Manual 2000

SEER Summary Stage

	Regionally by direct extension only	3 Regional lymph node(s) involved only	7 Distant site(s)/node(s) involved
<p>COLON C18.0-C18.9 C18.0 Cecum C18.1 Appendix C18.2 Ascending (right) colon C18.3 Hepatic flexure of colon C18.4 Transverse colon C18.5 Splenic flexure of colon C18.6 Descending (left) colon C18.7 Sigmoid colon C18.8 Overlapping lesion of colon C18.9 Colon, NOS</p> <p>SUMMARY STAGE 0 In situ 1 Localized only</p> <p>Invasive tumor confined to: Intramucosa, NOS Lamina propria Muscosa, NOS Muscularis mucosae Muscularis propria Perimuscular tissue invad Polyp, NOS: Head of polyp Stalk of polyp Submucosa (superficial in Subserosal tissue (subj Transmural, NOS Wall, NOS</p> <p>Confined to colon, NOS Extension through wall, NOS Invasion through muscularis p Localized, NOS</p>	<p>Extension to: All colon sites: Invasion of/through serosa (mesoth Extension into/through: Abdominal wall*** Adjacent tissue(s), NOS Connective tissue Fat, NOS Greater omentum Mesenteric fat Mesentery Mesocolon Pericolic fat Retroperitoneum (excluding fat Small intestine</p> <p>Ascending colon:*** Kidney, right*** Liver, right lobe*** Retroperitoneal fat*** Ureter, right***</p> <p>Transverse colon and flexures: Bile duct*** Gallbladder*** Gastrocolic ligament Kidney Liver Pancreas Spleen Stomach***</p> <p>Descending colon:*** Kidney, left*** Pelvic wall*** Retroperitoneal fat*** Spleen Ureter, left</p> <p>Sigmoid colon:*** Pelvic wall***</p>	<p>REGIONAL Lymph Nodes</p> <p>All colon subsites: Celic, NOS Epicolic (adjacent to bowel wall) Mesenteric, NOS Paracolic/pericolic Nodule(s) in pericolic fat</p> <p>Cecum and Appendix: Cecal, NOS Anterior (procecal) Posterior (retrocecal) Ileocolic Right colic</p> <p>Ascending colon: Ileocolic Middle colic Right colic</p> <p>Transverse colon and flexures: Inferior mesenteric for splenic flexu Left colic for splenic flexure only Middle colic: Right colic for hepatic flexure only</p> <p>Descending colon: Inferior mesenteric Left colic Sigmoid***</p> <p>Sigmoid: Inferior mesenteric Sigmoidal (sigmoid mesenteric) Superior hemorrhoidal*** Superior recta***</p> <p>Regional lymph node(s), NOS</p>	<p>All colon sites (sites included in code 2 Distant lymph node(s): Para-aortic Retroperitoneal Superior mesenteric¹ Other distant lymph node(s)</p> <p>Extension to: Adrenal (suprarenal) gland Bladder Diaphragm Fallopian tube² Fungula to skin Gallbladder Other segment(s) of colon via seros Ovary² Uterus²</p> <p>Cecum and appendix: Distant lymph node(s): Inferior mesenteric Other distant lymph node(s)</p> <p>Extension to: Kidney, right Liver² Ureter, right</p> <p>Ascending colon: Distant lymph node(s): Inferior mesenteric Other distant lymph node(s)</p> <p>Transverse colon and flexures: Distant lymph node(s): Inferior mesenteric for hepatic fle Other distant lymph node(s)</p> <p>Extension to: Ureter</p> <p>Sigmoid colon: Extension to: Cul de sac (rectouterine pouch) Ureter</p>

Note: Ignore intraluminal extension to adjacent segment(s) of colon/rectum or to the ileum from the cecum.

“c” and “p” and “yp”

39

- Clinical (c)
- Clinical Stage is determined before any type of definitive therapy is started. Clinical stage is used as a guide to determine what the first steps should be to establish the diagnosis of colon or rectal cancer; and to decide upon the approach and intent of 1st course of treatment – should 1st treatment include polypectomy, segmental resection, hemi or total colectomy, surgical bypass with or without -ostomy, neoadjuvant (pre-operative) chemo and/or radiation, or palliative care.
- Clinical Stage – includes the patient’s medical history, physical exam, sigmoidoscopy, and colonoscopy with biopsy to establish/confirm the diagnosis. Examinations to demonstrate the presence or absence of extrarectal or extracolonic metastasis may include radiographic films, CT of abdomen, pelvis and/or chest, MRI, and PET or PET/CT scans. Endoscopic Ultrasound (EUS) may be used to assess preoperative pelvic extent of disease in addition to CT, MRI, and/or PET scans.

“c” and “p” and “yp”

40

- Pathologic (p)
- Most cancers of the colon and many cancers of the rectum are pathologically staged following surgical exploration of the abdomen, cancer-directed surgical resection and pathologic examination of the resected specimen.
- Pathologic Stage is assigned following complete resection of the primary tumor and includes microscopic examination of the primary tumor, regional lymph nodes and/or other suspect tissues. Carcinoma in a polyp is classified according to the pT definitions adopted for colorectal carcinomas.
- Pathologic Stage is used to guide stage-specific adjuvant therapy decisions and to estimate prognosis.
- Pathologic Stage includes all information in the clinical setting PLUS all information obtained from surgical reports and pathology reports related to the extent of cancer spread through the completion of definitive surgery performed as a part of the 1st course of treatment or within 4 months of initial diagnosis of cancer in the absence of disease progression.

“c” and “p” and “yp”

41

- Post Neoadjuvant Treatment (yp)
- Post Neoadjuvant Treatment Stage is assigned following a prescribed “course” of neoadjuvant therapy (chemo, biologics, radiation, etc.). The standard of care for most rectal cancers is pre-surgical (neoadjuvant) therapy with chemo and/or radiation prior to any surgical resection.
- Post Neoadjuvant Treatment Stage includes microscopic examination of the primary, regional lymph nodes and/or other suspect tissues.
- Response to Neoadjuvant Therapy is determined by comparison of pre-treatment Clinical Stage to post-treatment Pathologic Stage and is qualified by the presence or absence of cancer in the primary tumor, regional lymph nodes, etc. or T, N, or M Category Differences.
 - Pathologically Confirmed Complete Response (CR)
 - Pathologically Confirmed Partial Response (PR)
 - Pathologically Confirmed No Response (NRL)

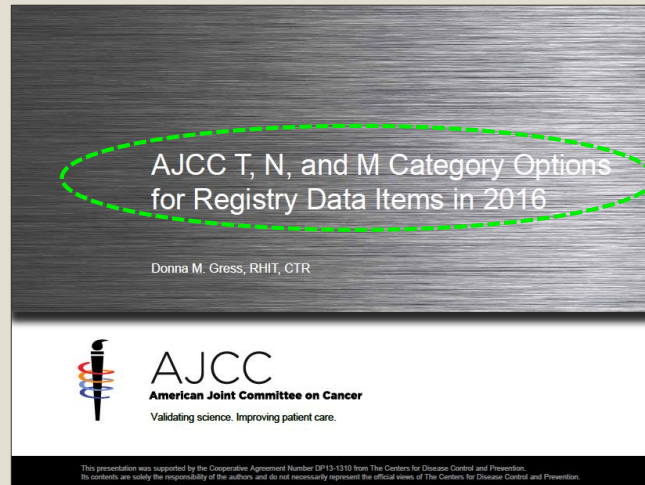
2016 Prefix Requirements / Physician Stage

42

- 2016 Requirements for “c” and “p” prefix use
 - Now must include “c” or “p” prefix for each T, N, M Category
 - New Codes for T, N, and M will be available in software soon
 - Use of Allowable Codes will be Strictly Enforced in 2016>
 - Clinical Stage now includes cT, pTis, cN and either c or pM
 - Pathologic Stage now includes pT, pN and either c or pM
 - Convert Roman Numerals (I, II, III) to Arabic (1, 2, 3)
- Physician Stage can be difficult to qualify as it may be a mixed clinical and pathologic stage, especially when the AJCC Stage is provided per history. Always check the Physician Stage to validate use of prefix and the correct T, N, and M Category Codes that best reflect the case.

AJCC Self Instruction - Updates

43



<https://cancerstaging.org/CSE/Registrar/Pages/AJCC-Curriculum.aspx>

AJCC Self Instruction - Updates

44

In Situ Neoplasm

- CIS definition
 - Has not involved any structures in primary organ that
 - Allows tumor cells to spread to regional nodes or distant sites
- CIS exception to stage group guidelines
 - Clinical stage
 - pTis cN0 cM0 clinical stage 0
 - Pathologic stage
 - pTis cN0 cM0 pathologic stage 0
- Caution for pathologic stage
 - Cannot use CIS rule in isolation
 - Must also meet pathologic stage resection criteria
 - Avoids sampling error when resection might show invasion
 - Example: TURB

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<https://cancerstaging.org/CSE/Registrar/Pages/AJCC-Curriculum.aspx>

2016 New Category Code Format - EXAMPLE

45

Table 1. TNM Clin T [940]

Code	Definition	Code	Definition	Code	Definition
(blank)	Not recorded	c1B	cT1b	c3	cT3
cX	cTX	c1B1	cT1b1	c3A	cT3a
c0	cT0	c1B2	cT1b2	c3B	cT3b
pA	pTa	c1C	cT1c	c3C	cT3c
pIS	pTis	c1D	cT1d	c3D	cT3d
pISU	pTispu	c2	cT2	c4	cT4
pISD	pTispd	c2A	cT2a	c4A	cT4a
c1M1	cT1m1, cT1 mic	c2A1	cT2a1	c4B	cT4b
c1	cT1	c2A2	cT2a2	c4C	cT4c
c1A	cT1a	c2B	cT2b	c4D	cT4d
c1A1	cT1a1	c2C	cT2c	c4E	cT4e
c1A2	cT1a2	c2D	cT2d	88	Not applicable

Deleted codes: A [Ta], IS [Tis], ISPU [Tispu], ISPD [Tispd]

Added codes: pA [pTa], pIS [pTis], pISU [pTispu], pISD [pTispd]

NAACCR 2016 Implementation Guidelines (NAACCRv16)


AJCC Self Instruction - Updates

46

Explaining Blanks and X,
Ambiguous Terminology and
Support for AJCC Staging

updated Dec 2015

Donna M. Gress, RHIT, CTR

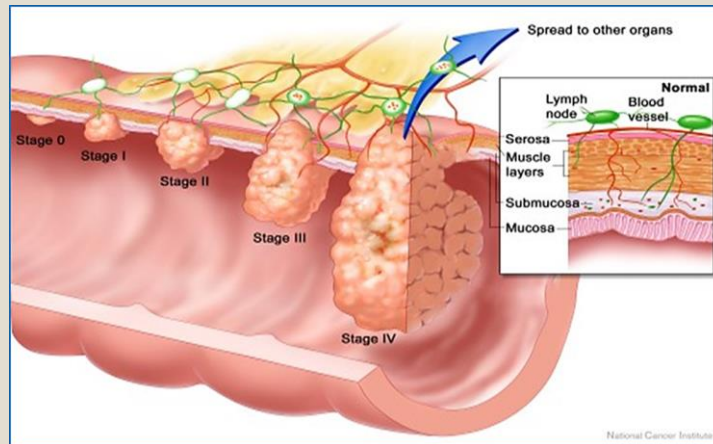
 **AJCC**
American Joint Committee on Cancer
Validating science. Improving patient care.

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<https://cancerstaging.org/CSE/Registrar/Pages/AJCC-Curriculum.aspx>

Colon and Rectal Cancer Staging

47



Source: National Cancer Institute

Staging Parameters

48

- Clinical (Pre-Tx) Stage is Critical for Rectal Cancers
- Primary Tumor Grade Important for NET/GIST
- Typical Colon/Rectal Cancers
 - Type of Adenoma
 - Primary Tumor Location
 - Intramucosal Spread (“T”)
 - Depth of Invasion into Wall (“T”)
 - Depth of Invasion thru Wall (“T”)
 - Number of Lymph Nodes Examined (“N”)
 - Number of Lymph Nodes Positive (“N”)
 - Extranodal Tumor Deposits (“N”)
 - Status of Resection Margins
 - Lymph-Vascular Invasion (LVI)
 - Metastatic Sites (“M”)



<http://safetyca.info>

Site-Specific Factors Required for Staging

49

NO Site-Specific Factors Required for Staging Of Colon, Rectum, Anus or NET of GI Tract



T Category – tumor size and extension

50

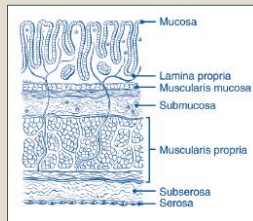
- **Non-Invasive or In Situ (Tis)**
 - Intraepithelial – no invasion of glandular basement membrane)
 - Intramucosal with extension into lamina propria
 - Intramucosal with no extension thru muscularis mucosae
 - Intramucosal with no extension into submucosa
- **Intramucosal with Extension into Submucosa (T1)**
- **Mixed Non-Invasive (In Situ) and Invasive – MPH Rule**
- **Invasive Only – Extension into/thru wall - critical**
- **The Primary Tumor Extends Beyond Colon Wall**

“T” Codes and Description

51

Primary tumor (T)

TX	Primary tumor cannot be assessed
T0	No evidence of primary tumor
Tis	Carcinoma in situ
T1	Tumor invades the submucosa
T2	Tumor invades the muscularis propria
T3	Tumor invades the subserosa or into nonperitonealized perirectal tissues
T4a	Tumor penetrates to the surface of the visceral peritoneum
T4b	Tumor directly invades or is adherent to other organs or structures



2016 Valid Codes for “T” Category

52

Table 1. TNM Clin T [940]

Code	Definition	Code	Definition	Code	Definition
(blank)	Not recorded	c1B	cT1b	c3	cT3
cX	cTX	c1B1	cT1b1	c3A	cT3a
c0	cT0	c1B2	cT1b2	c3B	cT3b
pA	pTa	c1C	cT1c	c3C	cT3c
pIS	pTis	c1D	cT1d	c3D	cT3d
pISU	pTispu	c2	cT2	c4	cT4
pISD	pTispd	c2A	cT2a	c4A	cT4a
c1MI	cT1mi, cT1 mic	c2A1	cT2a1	c4B	cT4b
c1	cT1	c2A2	cT2a2	c4C	cT4c
c1A	cT1a	c2B	cT2b	c4D	cT4d
c1A1	cT1a1	c2C	cT2c	c4E	cT4e
c1A2	cT1a2	c2D	cT2d	88	Not applicable

Deleted codes: A [Ta], IS [Tis], ISPU [Tispu], ISPD [Tispd]

Added codes: pA [pTa], pIS [pTis], pISU [pTispu], pISD [pTispd]

2016 Valid Codes for “T” Category

53

Table 2. TNM Path T [880]

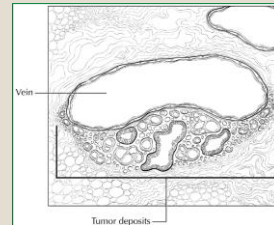
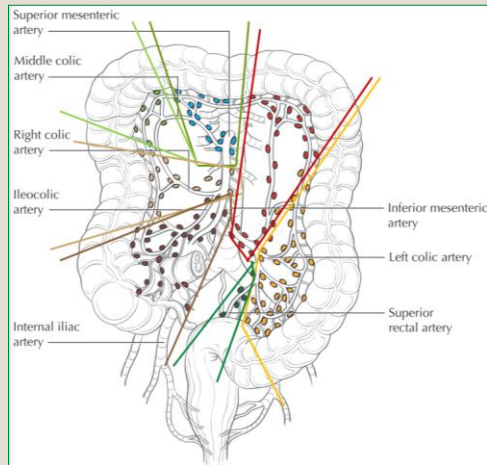
Code	Definition	Code	Definition	Code	Definition
(blank)	Not recorded	p1B	pT1b	p3	pT3
pX	pTX	p1B1	pT1b1	p3A	pT3a
p0	pT0	p1B2	pT1b2	p3B	pT3b
pA	pTa	p1C	pT1c	p3C	pT3c
pIS	pTis	p1D	pT1d	p3D	pT3d
pISU	pTispu	p2	pT2	p4	pT4
pISD	pTispd	p2A	pT2a	p4A	pT4a
p1M1	pT1mi, pT1 mic	p2A1	pT2a1	p4B	pT4b
p1	pT1	p2A2	pT2a2	p4C	pT4c
p1A	pT1a	p2B	pT2b	p4D	pT4d
p1A1	pT1a1	p2C	pT2c	p4E	pT4e
p1A2	pT1a2	p2D	pT2d	88	Not applicable

Added codes: pISU [pTisu], pISD [pTisd]

NAACCR 2016 Implementation Guidelines (NAACCRv16)

N Category - Regional Lymph Nodes

54



Modified AJCC Image - The regional lymph nodes of the colon and rectum are colored by anatomic location.

“N” Codes and Description

55

Regional lymph nodes (N)

NX	Regional lymph nodes cannot be assessed
N0	No regional nodal metastasis
N1	Metastasis in one to three regional lymph nodes
N1a	Metastasis in one regional lymph node
N1b	Metastasis in 2–3 regional lymph nodes
N1c	Tumor deposit(s) in the subserosa, mesentery, or nonperitonealized perirectal tissues without regional nodal metastasis
N2	Metastasis in 4 or more regional lymph nodes
N2a	Metastasis in 4–6 regional lymph nodes
N2b	Metastasis in 7 or more regional lymph nodes

Counting Lymph Nodes Important for Colon
 Lymph Node Dissection Should Include 10-14 Regional Lymph Nodes
 No Criteria Yet for Isolated Tumor Cells in Lymph Node (pN0)
 Special Category for Tumor Deposits (pN1c)

2016 Valid Codes for “N” Category

56

Table 3. TNM Clin N [950]

Code	Definition	Code	Definition	Code	Definition
(blank)	Not recorded	c0A	cN0a	c2B	cN2b
cX	cNX	c0B	cN0b	c2C	cN2c
c0	cN0	c1	cN1	c3	cN3
c0I-	cN0I-	c1A	cN1a	c3A	cN3a
c0I+	cN0I+	c1B	cN1b	c3B	cN3b
c0M-	cN0m-	c1C	cN1c	c3C	cN3c
c0M+	cN0m+	c2	cN2	c4	cN4
c1MI	cN1mi	c2A	cN2a	88	Not applicable

2016 Valid Codes for “N” Category

57

Table 4. TNM Path N [890]

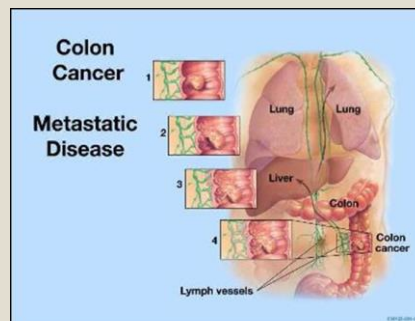
Code	Definition	Code	Definition	Code	Definition
(blank)	Not recorded	p0A	pN0a	p2C	pN2c
pX	pNX	p0B	pN0b	p3	pN3
c0	cN0	p1	pN1	p3A	pN3a
p0	pN0	p1A	pN1a	p3B	pN3b
p0I-	pN0i-	p1B	pN1b	p3C	pN3c
p0I+	pN0i+	p1C	pN1c	p4	pN4
p0M-	pN0m-	p2	pN2	88	Not applicable
p0M+	pN0m+	p2A	pN2a		
p1MI	pN1mi	p2B	pN2b		

Added code: of c0 [cN0]

NAACCR 2016 Implementation Guidelines (NAACCRv16)

M Category - Metastasis

58



www.colorectal-surgeon.com

“M” Codes and Description

59

Distant metastasis (M)

- M0** No distant metastasis
- M1** Distant metastasis
- M1a** Metastasis confined to 1 organ or site
- M1b** Metastasis in more than one organ/site or the peritoneum

2016 Valid Codes for “M” Category

60

Table 5. TNM Clin M [960]

Code	Definition	Code	Definition
(blank)	Not recorded	pM	pM
c0	cM0	p1A	pM1a
c0+	cM0(i+)	p1B	pM1b
c1	cM1	p1C	pM1c
c1A	cM1a	p1D	pM1d
c1B	cM1b	p1E	pM1e
c1C	cM1c	88	Not applicable
c1D	cM1d		
c1E	cM1e		

Added codes: p1, p1A, p1B, p1C, p1D, and p1E [pM1, pM1a, pM1b, pM1c, pM1d, pM1e, respectively]

Table 6. TNM Path M [900]

Code	Definition	Code	Definition	Code	Definition
(blank)	Not recorded	p1C	pM1c	c1B	cM1b
c0	cM0	p1D	pM1d	c1C	cM1c
p1	pM1	p1E	pM1e	c1D	cM1d
p1A	pM1a	c1+	cM1(i+)	c1E	cM1e
p1B	pM1b	c1A	cM1a	88	Not applicable
p1M1	pM1mi	p2B	pN2b		

Deleted code: 0 [M0]

Added codes: c0 [cM0], c0+ [cM0(i+)], c1 [cM1], c1A, c1B, c1C, c1D, and c1E [cM1a, cM1b, cM1c, cM1d, cM1e, respectively]

Anatomic Stage/Prognostic Group

61

NOTE: No Biologic or Molecular SSF Results Change the Stage Group

ANATOMIC STAGE/PROGNOSTIC GROUPS			
Stage 0	Tis	N0	M0
Stage IA	T1*	N0	M0
Stage IB	T0	N1mi	M0
	T1*	N1mi	M0
Stage IIA	T0	N1**	M0
	T1*	N1**	M0
	T2	N0	M0
Stage IIB	T2	N1	M0
	T3	N0	M0
	T0	N2	M0
Stage IIIA	T1*	N2	M0
	T2	N2	M0
	T3	N1	M0
Stage IIIB	T3	N2	M0
	T4	N0	M0
	T4	N1	M0
Stage IIIC	T4	N2	M0
	Any T	N3	M0
Stage IV	Any T	Any N	M1

Text Documentation

62

NATIONAL CANCER REGISTRARS ASSOCIATION
INFORMATIC
A Guide to Do

COLON

The abstract is the basis of all registries and is all cancer research. It is information needed to provide a certificate.

To assist registrars in preparing abstracts of information abstracts. These abstracts and include only those diagnostic procedures, pathology, research or is located at the end of a record in the various sections below may need to do additional research.

When using the informational abstract sections. Do not use by using these disease process and the specific cell. When the abstract is completed, use:

PHYSICAL EXAM/HISTO
 Include:
 • **Demographic:** Age, sex, race, of the patient.
 • **Chief Complaint (CC):** Write a brief statement about why the patient medical care.
 • **Physical Examination (PE):** Data exam and documentation of notes pertinent to the colon cancer.
 • **History:** Personal history of any cancer, HNPCC or Lynch syndrome in patient members. Family history of any cancer. Tobacco, Age, frequency, amount Alcohol, frequency, amount Use significant, research documents particularly those that impact the diagnosis.

COLON

X-RAYS/SCOPES/SCANS
 Include:
 • **Date(s) of Procedure(s)**
 • **Type(s) of Procedure(s):** A description of what was found during examination, including segment of the colon, evidence of perforation, biopsy taken, include the name of the facility/provider performing these tests, especially if outside of your facility.
 • **Studies Conducted to Work-Up Unexplained (U/S):** helpful in determining solid from cystic structures.
Computerized Tomography (CT)
Abdomen/ Pelvic: useful in determining extent of disease. If lymph nodes are involved or there is distant spread.
Magnetic Resonance Imaging (MRI):
 produce images that may identify extent of disease not seen on CT or U/S.
Positron Emission Tomography (PET):
 identifies "hot" areas of uptake throughout the body and are useful in assessing regional and distant mets.

LABS
 Include:
 • **Bowel and Tumor:** Relevant lab tests and dates. For example, pre-operative CEA, HbA1c, the laboratory factor, include lab value and lab value range if normal.

DIAGNOSTIC PROCEDURES
 Include:
 • List procedures, including the date and location if outside your facility.

PATHOLOGY
 Include:
 • Site of tumor, histology, histologic grade, location of tumor, depth of invasion. Angiolymphatic invasion (present/not present). Peritoneal invasion (present/not present). Lymph node status (number positive/ number total). Margin Status (distal, proximal and radial). Other findings. Pathologic Stage.

COLON

PRIMARY SITE
 Include:
 • Identify the segment of colon involved by the tumor.
Example: C18.7 Sigmoid colon.

HISTOLOGY
 Include:
 • Histology, differentiation, grade
Example: Moderately Differentiated adenocarcinoma, G2.

TREATMENT
 Include:
 • **Surgical Procedure(s):** Date(s) of the procedure (s), type of procedure(s), approach, and colon segment involved.
 • **Findings by Surgeon:** Surgical approach; findings by segment at time of surgery; perforation, lymph node status, regional organ involvement, and adjuvant treatment vs. patient.
Example: 5/22/14 Laparoscopic Sigmoid colectomy (partial resection), Mass adjacent to pericolic peritoneum.
 • **Chemical Treatment:** Include information on current antineoplastic drugs and drug regimens (see Resources for links to NCCN for Antineoplastic Drugs Database), include dates, agents used, indicate if adjuvant or neoadjuvant.
Example: 7/3/14: FOLFOX 6 administered by Dr. Smith, Medical Oncology Assistant.

• **Radiation Treatment:** Start and stop dates, location of treatment, if administered by another facility, treatment modality, regional and boost dosages, where applicable, number of fractions, number of days of treatment. Was the treatment preoperative or post-op? if not administered, document the reason why.
Note: The dose of radiation is limited in colon cancer since it has a relatively small target on the disease process.
Example: 2/4/14 - 3/28/14: 5000cGy to pelvis for six fractions over six days utilizing 3D approach.
 • **Clinical Trials:** Is the patient enrolled in any clinical trials? If so, include the name, trial numbers, and any other available details, including the date of enrollment.

Source: NCRA Informational Abstracts – Improving Text

Staging Practice

63



Case 1 – Case Vignette

64

- **HISTORY:** 59 year old African American female admitted following recent colonoscopy showing malignant appearing mass in ascending colon. Family History: Father had rectal cancer Physical Exam is essentially WNL.
- **CT CHEST/ABDOMEN:** no abnormalities noted
- **COLONOSCOPY** per history showed malignant appearing mass in proximal ascending colon – unknown if biopsy was taken to confirm malignancy.
- **CEA** 0.6 – WNL
- **PATHOLOGY** from Resection - Right colon, hemicolectomy: Low grade (moderately differentiated) adenocarcinoma of cecum. Maximum dimension: 3.0 cm. Grossly the lesion invades through the muscularis propria into the underlying mesenteric adipose tissue. Microscopic tumor extension: invades through muscularis propria. Lymphovascular invasion: present (venous). Perineural invasion: not identified. Discontinuous extramural tumor deposits: not identified. Margins: free of tumor. Twenty two lymph nodes negative for metastatic carcinoma (0/22).

Case 1 – Answer & Rationale

65

Practice Case #1			
C18.0 – Cecum			
8140/32 – Low Grade/Mod Diff Adenocarcinoma, NOS			
Clinical TNM AJCC Stage Group	cTblank cN0 cM0	c99	Tumor Extension into or thru the colon wall is basis for cT evaluation. But, only tumor location can be assessed from Colonoscopy or CT Scan (cTblank or cTX). Clinical Node status can be based on CT Abd and no nodes noted (cN0). cM0 based on CT Chest/ Abd neg. Clinical Stage - Unstaged - cannot clinically determine depth of invasion into colon wall by PE or on imaging.
Pathologic TNM AJCC Stage Group	pT3 pN0 cM0	pIIA	Pathologic staging is based on histologic review of resection of primary site and regional lymph nodes specimen. Tumor invades thru muscularis propria into (pericolic) adipose tissue (pT3) but not to the peritoneum or to other adjacent organs or structures. No lymph node mets (0/22) and no tumor deposits in found in mesentery (pN0). No pathologic confirmation of any metastasis - so, you take the clinical (cM0). Pathologic Stage IIA
SEER Summary Stage 2000		2 Regional Direct Ext Only	Regional Direct Ext Only into Pericolic Adipose Tissue

Case 2 – Case Vignette

66

- **HISTORY:** 64 year old white male admitted through the ER with severe abdominal pain.
- **CT CHEST/ABD:** extra-luminal gas right lower quadrant in area of cecum, suspect perforation of ascending colon
- **PATHOLOGY Laparoscopic Ileocecectomy:** poorly differentiated adenocarcinoma of cecum.; Maximum dimension: 4.4 cm, Microscopic tumor extension: penetrates serosal surface (visceral peritoneum) with perforation and direct invasion of distal ileum; LVI: present; One discontinuous extramural tumor deposit found in mesentery without nodal structure; Margins: free of tumor, nine lymph nodes negative for mets (0/9).

Case 2 – Answer & Rationale

67

Practice Case #2			
C18.0 – Cecum			
8140/33 – Adenocarcinoma, NOS, poorly differentiated = Grade 3 per 2014 Grade Coding Instructions			
Clinical TNM AJCC Stage Group	cTblank cN0 cM0	c99	Tumor Extension into or thru the colon wall is basis for cT evaluation. But, only tumor location can be assessed from Colonoscopy (cTblank or cTX). Clinical Node status can be based on CT Abd which was negative (cN0). cM0 based on CT Chest/Abd neg. Clinical Stage - Unstaged - cannot clinically determine depth of invasion into colon wall.
Pathologic TNM AJCC Stage Group	pT4b pN1c cM0	pIIIC	Pathologic staging is based on histologic review of resection of primary site and regional lymph nodes specimen. Microscopic states tumor penetrates into visceral peritoneum (pT4a) plus there is invasion of (adjacent) ileum (pT4b). So, you go with most extensive (pT4b). All Lymph Nodes are negative (0/9). But there was 1 tumor deposit without nodal structure noted in path (pN1c). No pathologic confirmation of any metastasis - so, you take the clinical cM0. Pathologic Stage IIIC.
SEER Summary Stage 2000		4 Regional Direct Ext PLUS Lymph Nodes	Regional direct extension plus lymph nodes - per Summary Stage 2000 - mesenteric tumor nodules (tumor deposits) are treated as + nodes

Case 3 – Case Vignette

68

- **HISTORY:** 57 year-old Hispanic female with biopsy-confirmed adenocarcinoma of the rectosigmoid.
- **CT CHEST:** few small (<1cm) nonspecific hilar lymph nodes noted in chest. Exam otherwise negative.
- **COLONOSCOPY SPECIMEN:** Tumor colon @ 15 cm biopsy: invasive well differentiated adenocarcinoma
- **PATHOLOGY:** Sigmoidectomy - 3.9 x 3.2 x 0.7 cm circumferential ulcerative lesion; invasive moderately differentiated colonic adenocarcinoma with extension into and through muscularis propria and focal transmural extension to serosal surface, margins free of tumor, 2/13 lymph nodes positive for metastatic carcinoma; discontinuous tumor deposits – present; liver wedge biopsy metastatic colonic adenocarcinoma

Case 3 – Answer & Rationale

69

Practice Case #3			
C18.7 – Sigmoid Colon (4cm size tumor mass @ 15cm from anal verge with sigmoidectomy procedure) 8140/32 – Adenocarcinoma, NOS; mod diff			
Clinical TNM AJCC Stage Group	cTblank cNblank cM0	c99	Tumor Extension into or thru the colon wall is basis for cT evaluation. But, only tumor location can be assessed from Colonoscopy (cTblank or cTX). Clinical Node status can be based on CT Abd but only CT Chest done so cannot assess nodes in abdomen (cNblank or cNX). cM0 based on CT Chest neg. Clinical Stage - Unstaged - cannot clinically determine depth of invasion into colon wall or node involvement.
Pathologic TNM AJCC Stage Group	pT3 pN1b pM1a	gIVA	Pathologic staging is based on histologic review of resection of primary site and regional lymph nodes specimen. T3 based on extension thru muscularis propria up to serosal surface (pT3) without mention of extension to visceral peritoneum or other organs or structures. 2/13 nodes positive and there are tumor deposits When both tumor deposits and nodes are present you ignore the tumor deposits and assign pN based on nodes +. So, pN1b is nodal category assigned. NOTE: Only use pN1c when there are NO + nodes but there are + tumor deposits (not nodes) on path. Pathologic confirmation of liver metastasis - pM1a. Pathologic Stage IVA.
SEER Summary Stage 2000		7 Distant	Distant to Liver

Case 4 – Case Vignette

70

- **HISTORY:** 61 yr old white female, lifelong smoker, with multiple medical problems including recent adenoma on routine screening colonoscopy. Physical exam - negative.
- **CT CHEST:** Negative
- **COLONOSCOPY :** Transverse colon polyp @ 110cm – high grade dysplasia with focal intramucosal well differentiated adenocarcinoma arising in an adenoma.
- **PATHOLOGY:** laparoscopic transverse colectomy – Small residual component of tubulovillous adenoma w/ no evidence of residual carcinoma, no evidence to suggest invasion of lamina propria, 0/4 + pericolic lns

Case 4 – Answer & Rationale

71

Practice Case #4			
C18.4 – Transverse Colon			
8263/31 – Adenocarcinoma (invasive) arising in Tubulovillous Adenoma, Well Differentiated			
Clinical TNM AJCC Stage Group	pT1 cN0 cM0	cIA	Tumor Extension into or thru the colon wall is basis for cT evaluation. Colonoscopy with HGD and focal intramucosal adenocarcinoma with invasion noted. Intramucosal in this case is invasive so is this pT1?? Clinical Node status can be based on CT Abd but NO CT performed. However, colonoscopy shows minimal invasive adenocarcinoma in polyp can this be (cN0)?? cM0 based on CT Chest neg. Clinical Stage IA based on minimal invasion.
Pathologic TNM AJCC Stage Group	pT1 pN0 cM0	pIA	Pathologic staging is based on histologic review of resection of primary site and regional lymph nodes specimen. Polypectomy showed focal intramucosal neoplasm with minimally invasive adenocarcinoma (pT1). 0/4 nodes positive (pN0). No pathologic confirmation of any metastasis – cM0. Pathologic Stage IA
SEER Summary Stage 2000		1 Localized	Localized

Case 5 – Case Vignette

72

- **HISTORY:** 57 year old obese white female with chronic constipation and bright red blood in stool. Rectal exam positive for mass low in rectum with fixation.
- **EUS:** large mass fixed to rectal wall with evidence of invasion into perirectal fat and partial lumen obstruction, prominent node on ultrasound exam.
- **RECTAL BX:** poorly differentiated adenocarcinoma
- **Treatment Summary:** Patient was treated with pre-operative 5-FU with concurrent radiation therapy. Patient completed her short-course XRT but did not return for surgical resection and expired in home.

Case 5 – Answer & Rationale

73

Practice Case #5			
C20.9 – Rectum			
8140/33 – Adenocarcinoma, NOS; poorly differentiated			
Clinical TNM AJCC Stage Group	cT3 cN1 cM0	<u>cIIIB</u>	Tumor Extension into or thru the colon wall is basis for cT evaluation. EUS shows at least invasion into perirectal fat but cannot assess any further extension. Fixation does not imply penetration or invasion into adjacent organs or visceral peritoneum. Clinically assessed depth invasion of cT3. Clinical Node status based on EUS with prominent node noted cN1. cM0 based on clinical no evidence of mets in history. Clinical Stage IIIB.
Pathologic TNM AJCC Stage Group	<u>pTblank</u> <u>pNblank</u> cM0	p99	Pathologic staging is based on histologic review of resection of primary site and regional lymph nodes specimen. Patient did not have post-treatment resection. So, cannot assess pathologic or post-neoadjuvant T or N. <u>pTblank</u> and <u>pNblank</u> . Not assessed. No pathologic confirmation of any metastasis - cM0. Pathologic Stage – <u>unstaged</u> <u>yp</u> not allowed due to no surgical resection
SEER Summary Stage 2000		4 Regional Direct Ext PLUS Lymph Nodes	Regional Direct extension plus lymph nodes (Summary Stage is best stage - clinical/pathologic or combined)

References

74

- Cancer Epidemiology, Oxford University Press
- American Cancer Society – www.acs.org
 - Cancer Facts and Figures 2016
 - Colorectal Cancer Facts and Figures 2014-2016
- American Joint Committee on Cancer
 - www.cancerstaging.org
 - Cancer Staging Form
 - Cancer Staging Poster
 - AJCC Registrar Curriculum
 - AJCC Cancer Staging Manual, 7th edition
 - Collaborative Stage Data Collection System v 02.05
- SEER Summary Staging Manual 2000
- www.medicinenet.com/colon_cancer
- NCCN Treatment Guidelines – www.nccn.org

Questions

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